OAKLAND, CA
REC'D. ON ABOVE DATE

MARINER NEWS

CORPORATION
DEC 26 1979
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TO: Service Departments

FROM: Walter E. Kaelin, V.P. Engineering

DATE: December 13, 1979

SUBJECT: Mariner 60, Field Adjustments

Enclosed is the adjustment procedure, as well as a block diagram and schematic for the Mariner 60. The parts and test point description is contained in the owner's manual.

Please note that if NO microphone is connected, pin 2 and 5 of the microphone connector need to be jumpered to produce audio.

intech INC./282 BROKAW RD./SANTA CLARA, CA. 95050 U.S.A./(408) 244-0500/TWX 910-338-0254

MARINER 60

Frequency, Power and Modulation Adjustment Procedure

Frequency Adjustment (see figure)

1. Adjust frequency of reference crystal oscillator, Q801, by turning C803. Measure frequency on pin 9 IC-811, MC 14568.

   Frequency must be 8.00000 MHz ±10 Hz.

2. Adjust frequency of duplex crystal oscillator, Q961, by turning C961. Measure frequency on Rx LO T.P. (L.O. output).

   With the receiver set to channel 26, a frequency of 140.500 MHz must be measured.

3. Adjust frequency of simplex crystal oscillator, Q861, by turning C861. Measure frequency as above on Rx LO T.P.

   With the receiver set to channel 06, a frequency of 134.900 MHz must be measured.

4. Adjust frequency of 2nd L.O. crystal Y311 by turning C311. Measure frequency on emitter of Q311 using a 3.3pF capacitor in series with center conductor of a 50 ohm coax cable. The frequency must be 20.94500 MHz ±50 Hz.

5. Adjust final Tx frequency, measured at antenna terminal by adjusting the Tx offset oscillator Q451 with C444. With the M-60 set to the channel 06, a frequency of 156.300 MHz must be measured.

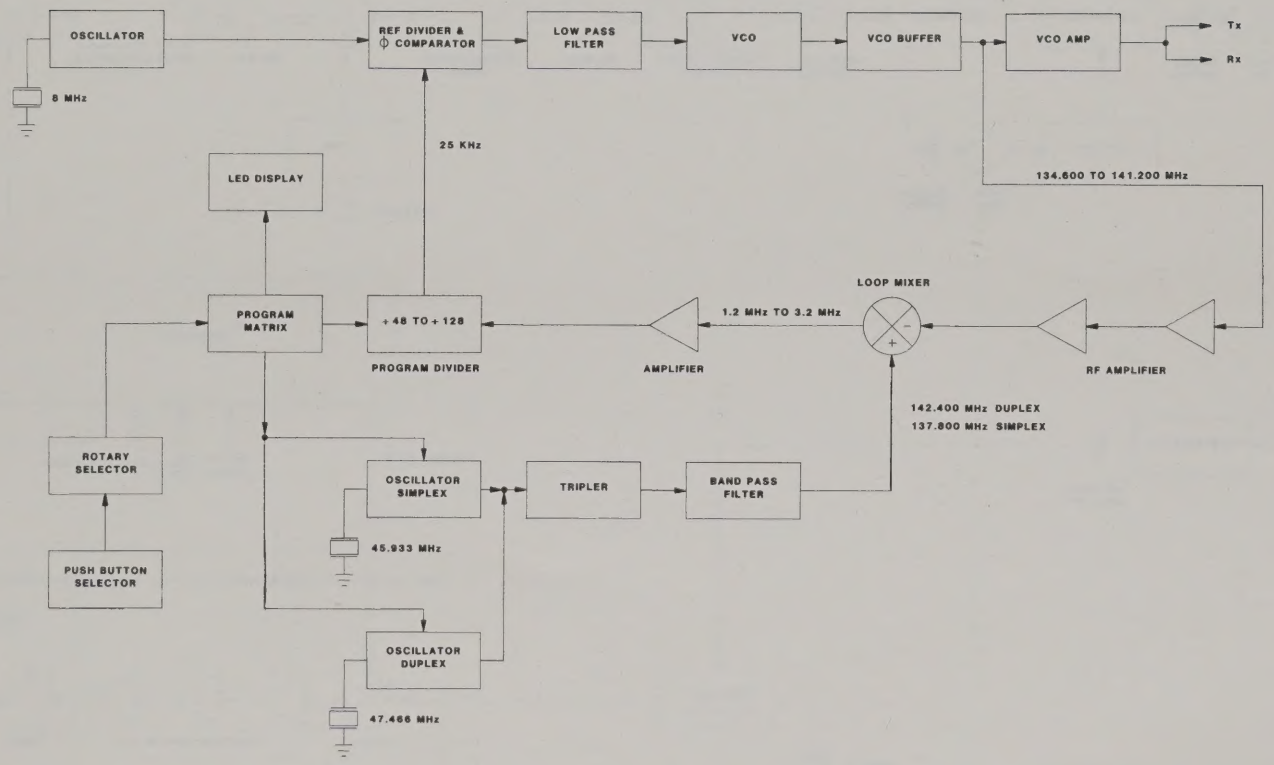
Power Output Adjustment

1. Hi power is adjusted with R354. Adjust for 25 watts at 13.6 volts.

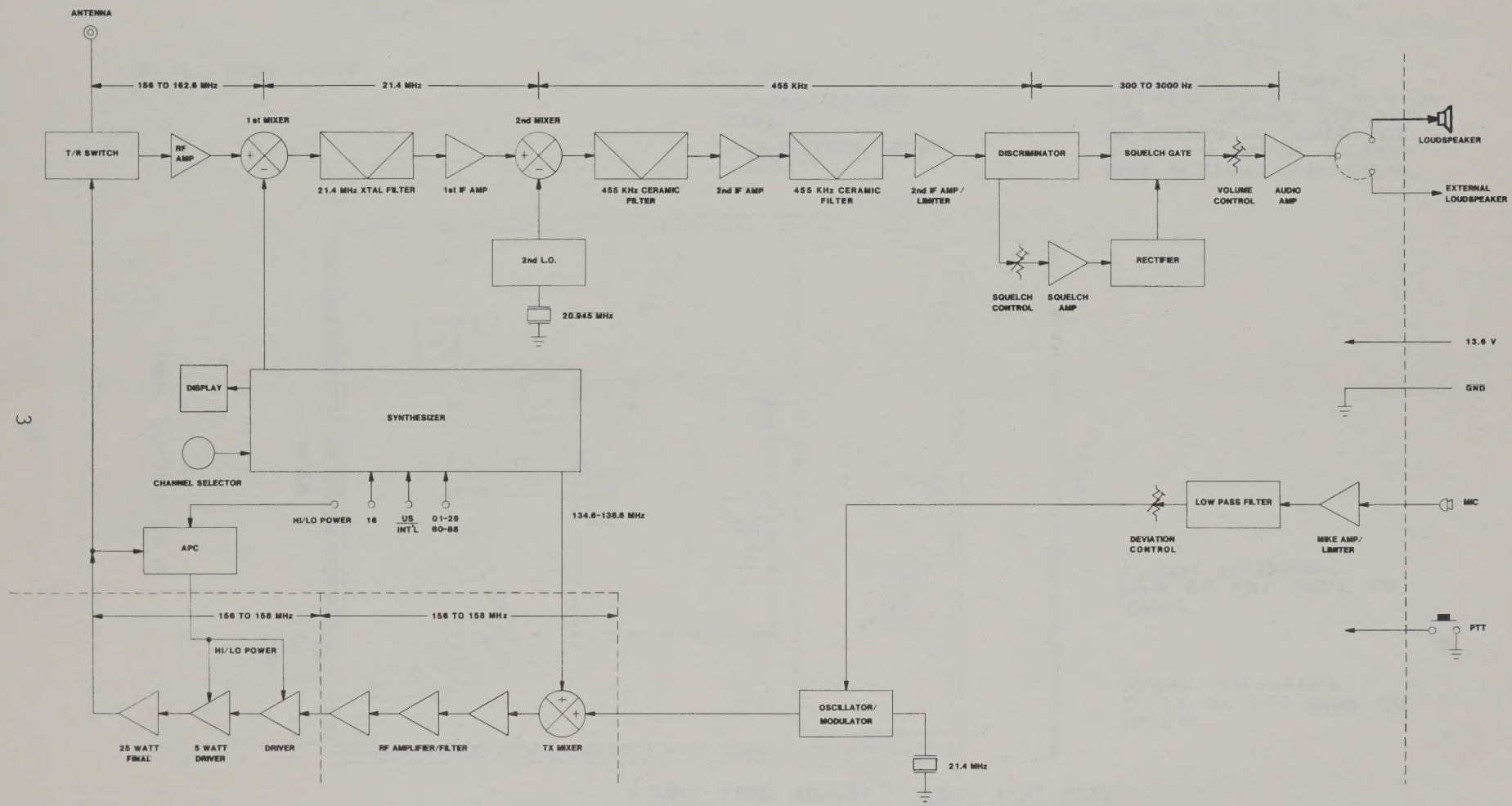
2. Lo power is adjusted with R355. Adjust for 0.75 to 1.0 watts at 13.6V.

Modulation Adjustment

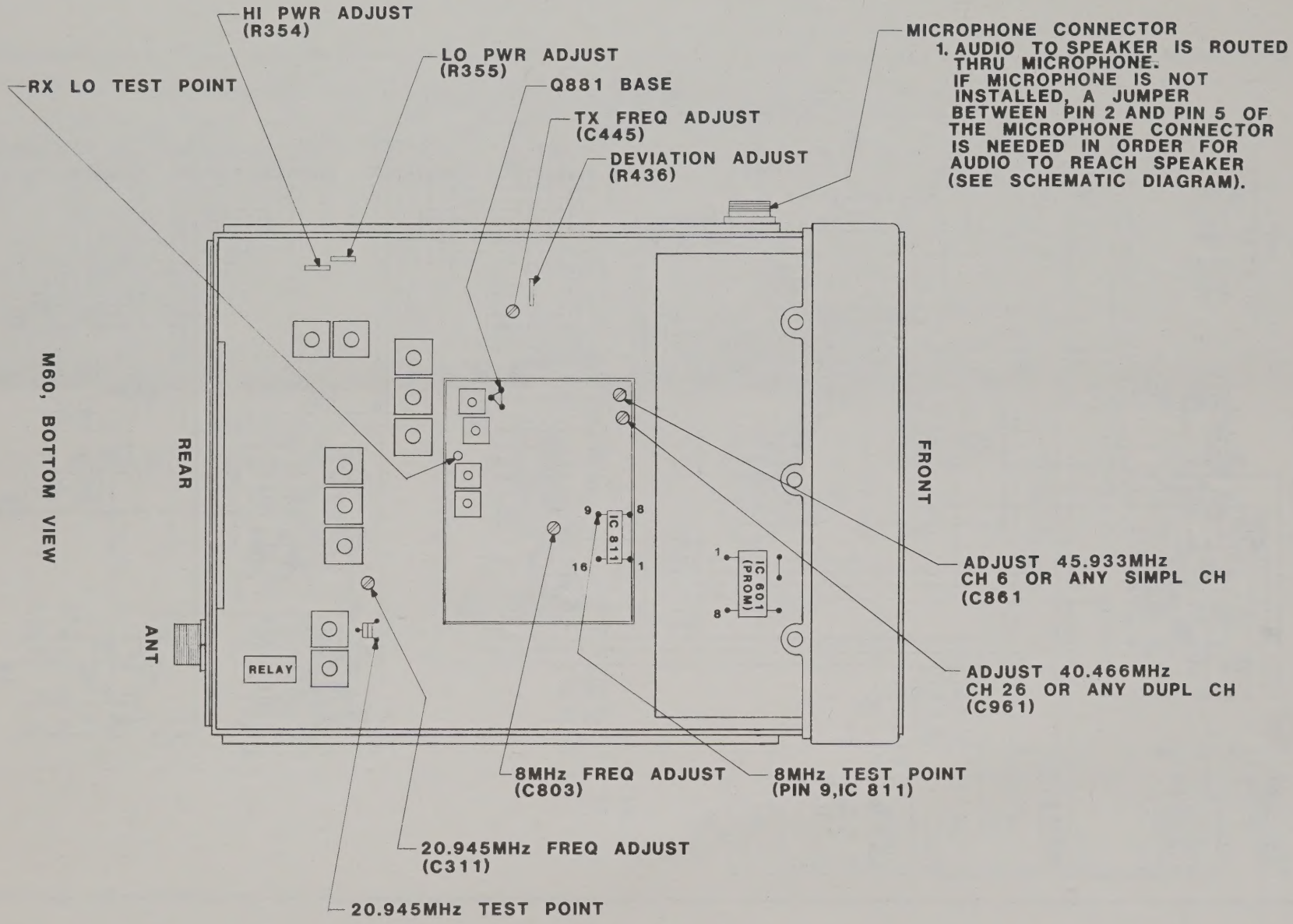
1. The deviation is adjusted with R436. While whistling or blowing into the microphone, set deviation to ±5 KHz.

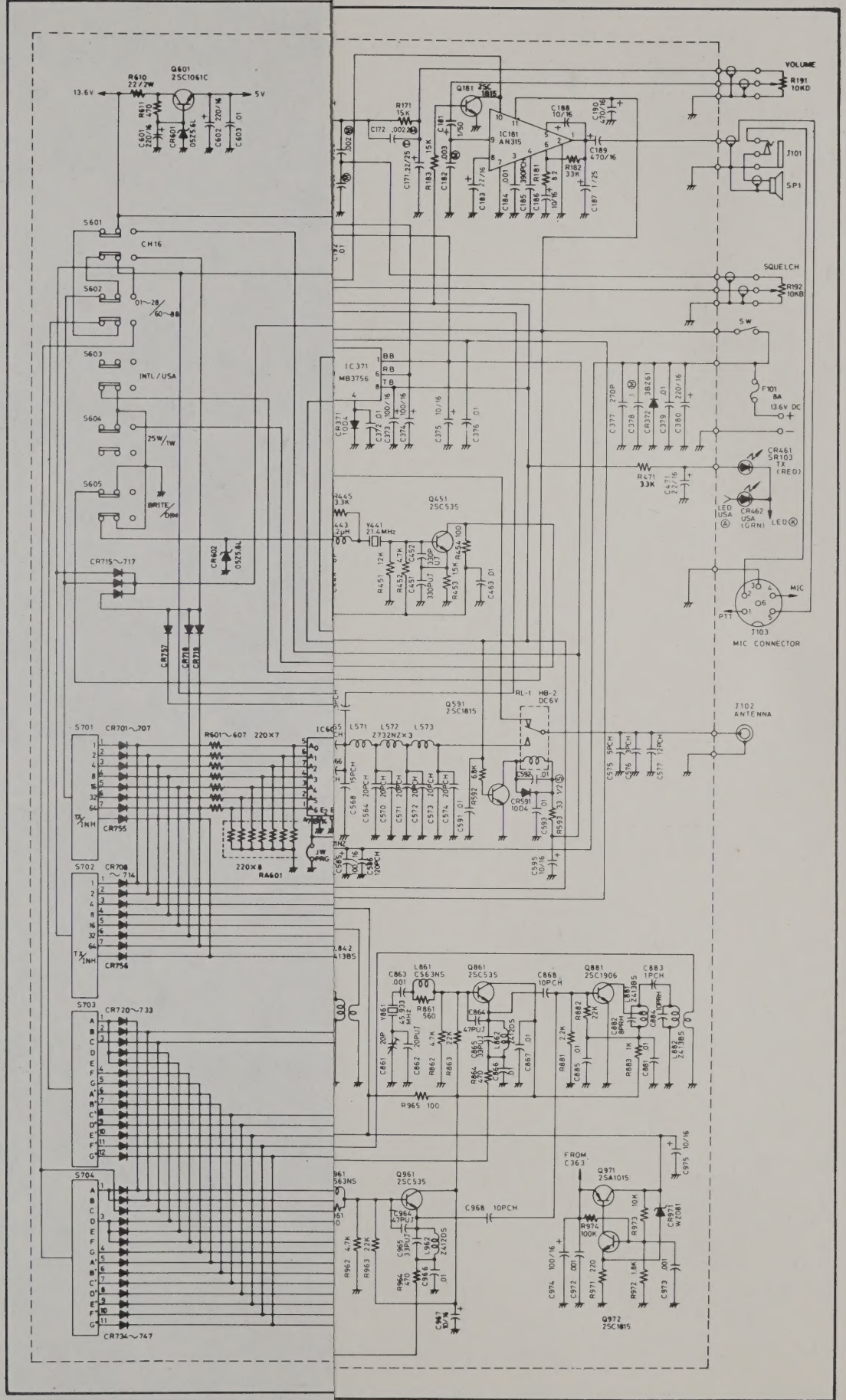


M-60 SYNTHESIZER BLOCK DIAGRAM



M-60 TRANSCEIVER BLOCK DIAGRAM


HI PWR ADJUST
(R354)
LO PWR ADJUST
(R355)
RX LO TEST POINT
Q881 BASE
TX FREQ ADJUST
(C445)
DEVIATION ADJUST
(R436)
MICROPHONE CONNECTOR
1. AUDIO TO SPEAKER IS ROUTED THRU MICROPHONE. IF MICROPHONE IS NOT INSTALLED, A JUMPER BETWEEN PIN 2 AND PIN 5 OF THE MICROPHONE CONNECTOR IS NEEDED IN ORDER FOR AUDIO TO REACH SPEAKER (SEE SCHEMATIC DIAGRAM).
M60, BOTTOM VIEW
REAR
FRONT
ANT
RELAY
IC 811
IC 601 (PROM)
ADJUST 45.933MHz
CH 6 OR ANY SIMPL CH
(C861
ADJUST 40.466MHz
CH 26 OR ANY DUPL CH
(C961)
8MHz FREQ ADJUST
(C803)
8MHz TEST POINT
(PIN 9,IC 811)
20.945MHz FREQ ADJUST
(C311)
20.945MHz TEST POINT


Q601
2SC1061C
13.6V
5V
VOLUME
R191
10KΩ
J101
SP1
SQUELCH
R192
10KΩ
SW
F101
8A
13.6V DC
CR461
SR103
TX
(RED)
LED
USA
CR462
USA
(GRN)
LED
MIC
PTT
J103
MIC CONNECTOR
J102
ANTENNA
S601
CH16
S602
S603
INTL/USA
S604
25W/1W
S605
BRITE/DIM
CR715~717
CR602
CR752
CR753
CR754
IC371
MB3756
Q451
2SC535
Y641
21.4MHz
Q591
2SC1815
RL-1
HB-2
DC6V
IC605
Z732NZ×3
S701
CR701~707
R601~607 220×7
CR755
S702
CR708~714
CR756
S703
CR720~733
S704
CR734~747
RA601
220×8
Q861
2SC535
Q881
2SC1906
Q961
2SC535
Q971
2SA1015
Q972
2SC1815
FROM
C363

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9/26/79

SCHEMATIC DIAGRAM